

CAUSES OF DESTRUCTION OF NESTS OF WEAVER BIRDS IN RAJASTHAN¹

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INTRODUCTION

Three species of weaver birds, namely *Ploceus benghalensis*, *P. manyar* and *P. philippinus* are found in Rajasthan (Sharma, 1991a). All these species generally initiate nesting from June-July and their breeding activities end in September-October. By that time, nests are deserted by the adults with juveniles. New nesting is started only next year in the monsoon, i.e. after nearly 8-9 months.

The abandoned nests are destroyed by various agencies and considerably fewer nests remain intact at the commencement of the next monsoon.

STUDY AREA

To evaluate the nest destruction trend, I conducted a study in Alwar and Udaipur districts, in different habitats. Three sites were selected in Alwar district and one in Udaipur as follows:

1. Site A: Tatarpur mixed plantation 'A', consisting of 20 ha undulating sand dunes. *P. philippinus* and *P. benghalensis* were found breeding there. *Acacia senegal* was preferred most for nesting by *P. philippinus*. Nests of *P. benghalensis* were invariably present on *Saccharum bengalense*. Though the area was fenced in by the Forest Department, browsing by goats and camels, lopping by local people for fodder, fencing material and fuel-wood were the major threat to *Acacia senegal*, which prevails round the year, specially in winter from January to February. *Saccharum bengalense* is harvested in winter for thatching roofs and making ropes.

2. Site B: A stretch of 1000 x 50 m (i.e. 5 ha) area confined to the bed of Nahavani

river near Harsora Dam. It is a seasonal river, but due to seepage of water from the dam, this portion remains wet even in summer. Luxuriant growth of *Typha angustata* and *T. elephantina* can be seen in the river bed where *P. manyar* breeds. Repeated grazing and trampling by cattle round the year is a major threat to this habitat. During winter, *Typha* is harvested by the locals for rope making and thatching their houses. The stems and leaves are cut near ground level, bundled and carried to nearby villages and hamlets. Nests of the striated weaver bird *P. manyar*, present on *Typha*, are pulled out by the locals before making the bundles of cut stems and leaves.

3. Site C: 20 old wells within a radius of 5 km near village Tatarpur were selected. Various species of bushes and trees growing on the walls of the wells were found to provide suitable sites for the nests of *P. philippinus*. No apparent threat to the nests was recorded.

4. Site D: A stretch of 100 ha of agricultural land dotted with wild date palm (*Phoenix sylvestris*) was selected between the village Jara-Pipla and Koliyari in Udaipur district. Only one species of weaver bird, namely *P. philippinus*, occurs in this locality. It preferably nests on *P. sylvestris*. The wild date palm is an important tree for domestic use in this locality. Leaves of these plants are harvested during February for making brooms, mats etc. During March and April, fire is put to the stems of younger palms to burn off the scaly parts.

METHODOLOGY

Three sites in Alwar district, namely, Tatarpur mixed plantation (site A), Nahavani River-bed (site B), and old wells of Tatarpur (site C) were surveyed from October 1983 to June 1984 while Jara-Pipla-Koliyari agricultural land

¹Accepted January, 1995.

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in Udaipur district (site D) was studied from October 1992 to June 1993. Counting of nests at all the sites was done in the last week of every month. Various factors were identified which were found responsible for the destruction of nests.

RESULTS

From the observations at different sites it was concluded that many biotic and abiotic agencies are responsible for destruction of nests. Biotic factors include human and bovine activities. Lopping off twigs of trees, harvesting of *Saccharum bengalense*, *Typha elephantina* and *T. angustata* for thatching and rope making; harvesting of *Phoenix sylvestris* leaves for making brooms, mats etc., pulling out nests for domestic use and fire were listed as nest destructive activities of human beings. Grazing, trampling and wallowing of buffaloes in wet areas, i.e. habitat of *P. manyar*, were noted as major bovine nest destructive activities. Abiotic factors like wind and hailstorms were also found responsible for destruction of nests.

It was concluded from the data that different quantum of destruction of nests takes place in different habitats. Nest colonies present in wells were more secure than all the others. The nest destruction trends in different habitats are given in Tables 1 and 2.

DISCUSSION

1. Old wells provide maximum security to the nests while grasses and reeds are the most unsafe habitats for nests after the breeding period.

2. Maximum destruction of nests occurs during winter i.e. from December to February.

3. Biotic factors like man and his cattle are responsible for destruction of a major percentage of nests of weaver birds.

4. Tribals of Udaipur district traditionally put fire to stems of young wild date palms (*Phoenix sylvestris*) to burn the persistent leaf

bases, to make the trunk smooth for climbing. During this process the nests may catch fire.

5. Same habitats may provide different levels of safety to nests of different species as is evident in site 'A'. This site proved safer to *P. philippinus* but most unsafe to *P. benghalensis*.

Half-built intact nests of *Ploceus philippinus* are pulled out from host trees to use them as baskets in and around village Tatarpur. The "chin-strap" of a nest is gripped so that it hangs upside down like a basket. Such baskets are used by women and children to collect the ripe fruits of *Zizyphus nummularia* and *Cucumis melo* var. *agrestis*. Destruction of half-built nests for this purpose is generally done from November to January when the fruits of *C. melo* var. *agrestis* and *Z. nummularia* ripen.

It has been shown by many workers that abandoned nests of weaver birds play an important role in protection and conservation of many small wild animals such as the longtailed tree mouse *Vendeluria oleracea* (Ali and Ambedkar, 1956), *Mus* sp. (Regupathy and Davis, 1984), painted bat *Kerivoula picta* (Sharma, 1991a), Indian field mouse *Mus booduga* (Akhtar and Tiwari, 1992), whitethroated munia *Lonchura malabarica* (Ali, 1931; Ambedkar, 1970), house swift *Micropus affinis* (Kirkpatrick, 1950), spotted munia *Lonchura punctulata* (Sharma, 1987), and some arthropods (Sharma, 1991b).

The longtailed tree mouse (*V. oleracea*) lives in the abandoned nests of *P. benghalensis*, *P. manyar* and *P. philippinus* whenever an opportunity arises. This species enters the abandoned nests with the commencement of winter. Abandoned nests of weaver birds are used by the mice to give birth to blind and furless baby mice. Mice families pass the winter there snugly. So long as the mouse family remains inside the nest, predators can hardly reach them. Thus nests of weaver birds enhance the population of the longtailed tree mouse (Ali and Ambedkar, 1956; Sharma, 1988, 1991c).

TABLE 1
DESTRUCTION OF NESTS OF THREE SPECIES OF WEAVER BIRDS IN DIFFERENT HABITATS

Study area	Species of Weaver birds	Initial No. of intact nests on host vegetation	No. of intact nests												Percentage of intact nests (= %age of habitat safety)
			Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June				
Tatarpur mixed plantation (site A)	<i>P. philippinus</i>	109	109	109	102	94	91	89	87	81	80	73.3			
"	<i>P. benghalensis</i>	41	41	37	32	22	22	0	0	0	0	0.0			
Nahavani River bed (site B)	<i>P. manyar</i>	917	911	888	701	502	111	92	12	10	8	0.8			
Old wells of Tatarpur (site C)	<i>P. philippinus</i>	338	338	338	337	337	337	335	325	324	320	94.2			
Jara-Pipla-Koliyari Agricultural land (site D)	<i>P. philippinus</i>	76	76	76	70	59	17	7	4	4	4	5.2			
Total intact nests		1481	1475	1448	1243	1014	578	513	438	419	412				
Total destroyed nests — in the month			6	27	205	229	436	65	75	19	7				

TABLE 2
CAUSES OF NEST DESTRUCTION IN SURVEYED LOCALITIES

Study area	Species of Weaver birds	Nests destroyed Number	%	Number of nests destroyed by different causes*									
				1	2	3	4	5	6	7	8		
Tatarpur Mixed Plantation (site A)	<i>P. philippinus</i>	29	26.60	19	—	—	—	—	10	—	—	—	—
" "	<i>P. benghalensis</i>	41	10.00	—	29	2	—	—	10	—	—	—	—
Nahavani river bed (site B)	<i>P. manyar</i>	909	99.12	—	505**	400**	—	—	—	—	—	—	—
Old wells of Tatarpur (site C)	<i>P. philippinus</i>	18	5.32	—	—	—	—	—	—	—	—	—	18
Jara-Pipla-Koliyari Agricultural land (site D)	<i>P. philippinus</i>	72	94.23	—	—	—	—	65	3	—	—	4	—
Total destroyed nests				19	534	402	65	3	20	4	18		

*Causes of destruction: 1. Lopping, 2. Harvesting of leaves and stems of *S. bengalense*, *T. angustata* and *T. elephantina* for thatching and rope making, 3. Grazing and/or trampling of reeds and grasses, 4. Harvesting of leaves of wild date palm, 5. Fire, 6. Pulling out, 7. Wind, hailstorm, 8. Unknown

**Estimated by extent of the grazed and trampled area (nearly 2.8 ha) and area brought under harvesting for leaves (nearly 2.2 ha).

Painted bats (*Kerivoula picta*) use the ceiling of the helmets of *P. philippinus* for roosting. Due to growing demand for fuel-wood, most of the old and dried trees have been hacked down, with the result that several cavity nesting birds, mammals and other animals have no suitable site for making nests or roosts. Bats are probably using helmets of baya as roosting places owing to scarcity of roosting sites (Sharma, 1986).

Various species of munias such as whitethroated munia *Lonchura malabarica* habitually utilize old nests of *P. benghalensis* and *P. philippinus* (Ali and Ripley, 1983; Sharma, 1991 a) for laying eggs. The spotted munia (*L. punctulata*) also utilizes the old nests of *P. philippinus* (Sharma, 1987).

Many insects like the cotton bug *Dysdercus cingulatus*, spiders like *Plexippus paykullii*, *Marpissa* sp., *Sparassus* sp., *Scytodes* sp., etc. not only pass winters in abandoned nests but multiply there (Sharma, 1991b). In warm weather, arthropods live in different niches, but with the onset of winter, they hide themselves in safer places to pass the cold season. Abandoned nests of weaver birds are utilized as 'inns' by insects and spiders for wintering. Some of them breed in the nests. Many spiders were observed with eggs and hatched young with them in the nests. More than one type of spider was found wintering and breeding together in the same nest. The ceiling of the nest is the most preferred site for Arthropods to take shelter during the winter

season. The ceiling being the most massive part of the nest, provides the greatest insulation to the wintering poikilothermic arthropods. Insects like the mason-wasp *Eumenes petiolatus* attach the characteristic clay brood-nests on ceilings of the helmets of weaver birds (Sharma, 1991a).

All these animals of smaller size described here may enter the nests of weaver birds. Using nest entering capability as a parameter, animals may be categorised into two groups — Entrants and Non-entrants. House crows and jungle crows are of larger size and cannot enter the nests, hence they fall in Non-entrant group, which seek the nests when they are 'alive' i.e. inmates are living or at least present inside. Entrants prefer an empty or deserted nest, but they may encroach upon an occupied nest also. They enter the weaver bird's nest through existing openings or by making *denovo* holes in any suitable part of the nest. Entrants may utilize nest cavities variously for breeding, wintering, roosting, hibernation and escaping predation. Destruction of abandoned nests of weaver birds deprive many small animals of shelter.

ACKNOWLEDGEMENTS

I am grateful to officials of the Forest Department, Rajasthan, for helping me in the present study, and to the referee for improving the paper.

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